

We Claim:

1. A process for enhancing the yield of molecular sieve zeolite during the synthesis from a sodium aluminosilicate reaction mixture, said process comprising the step of adding at an intermediate stage of crystallization a source of aluminum to the sodium aluminosilicate reaction mixture and allowing the mixture to crystallize.
2. A process as claimed in claim 1, wherein the source of aluminum is added to the sodium aluminosilicate reaction mixture over an extended period of time.
3. A process as claimed in claim 1, wherein the source of aluminum is added to the sodium aluminosilicate reaction mixture in a dilute form.
4. A process as claimed in claim 1, wherein alumina is present in the ionic form in the source of alumina.
5. A process as claimed in claim 1, wherein the source of aluminum is added to the sodium aluminosilicate reaction mixture under constant agitation.
6. A process as claimed in claim 1, wherein the sodium aluminosilicate reaction mixture is depleted of aluminum and enriched in un-reacted soda and silica at the intermediate stage of crystallization.
7. A process as claimed in claim 1, wherein the intermediate time period at which aluminum source is added is in the range of 0.5 hour to 48 hours.
8. A process as claimed in claim 1, wherein the molecular sieve zeolite obtained is selected from the group consisting of low silica to alumina ratio zeolite, a medium silica to alumina ratio zeolite and a high silica to alumina ratio zeolite.
9. A process as claimed in claim 1, wherein the molecular sieve zeolite obtained are selected from zeolite Y, X, A, ZSM-5, ZSM-11, Beta, Omega, clinoptilolite and Mordenite.
10. A process as claimed in claim 1, wherein the source of aluminum is selected from the group consisting of aluminum salts, bayerite, pseudoboehmite, alumina gel and alumina sol.

11. A process as claimed in claim 10, wherein the aluminum salt is selected from the group consisting of aluminum sulfate, sodium aluminate, aluminum oxalate, aluminum formate, and aluminum trihydrate.

12. A process for enhancing yield of molecular sieve zeolite during synthesis from a sodium aluminosilicate reaction mixture, said process comprising steps of:

- (a) preparing a sodium aluminosilicate seed mixture;
- (b) preparing a sodium aluminosilicate gel reaction mixture;
- (c) adding the seed mixture of step (a) to the gel reaction mixture of step (b) to obtain molecular sieve precursor mixture;
- (d) heating the molecular sieve precursor mixture to a temperature of crystallization;
- (e) adding a source of aluminum to the molecular sieve precursor mixture at an intermediate stage of crystallization, wherein the molecular sieve precursor mixture is depleted of aluminum and enriched in soda and silica at the intermediate stage, and
- (f) crystallizing molecular sieve zeolite product, recovering of crystallized product by filtration; washing the same with hot demineralised water to obtain molecular sieve zeolite with pH below 9.

13. A process as claimed in claim 12, wherein yields of molecular sieves such as zeolite A, X, Y, Mordenite, Beta, Omega, clinoptilolite, ZSM-5 and those having sodium aluminosilicate framework can be enhanced by addition of aluminum source during intermediate stage of crystallization.

14. A process as claimed in claim 12, wherein precursor gel mixture has wide range of composition expressed in the molar ratio as:
 $0.5-15 \text{ Na}_2\text{O} : \text{Al}_2\text{O}_3 : 1-200 \text{ SiO}_2 : 50-1000 \text{ H}_2\text{O}$.

15. A process as claimed in claim 12, wherein the crystallization time ranges from 24 hrs to 120 hrs.

16. A process as claimed in claim 12, wherein the crystallization temperature of the molecular sieve varies from 45 to 180 °C.

17. A process as claimed in claim 12, wherein the source of aluminum is selected from group of aluminum compounds such as aluminum sulfate, sodium aluminate, aluminum oxalate, aluminum formate, aluminum trihydrate, colloidal alumina, alumina gel.
- 5 18. A process as claimed in claim 12, wherein quantity of aluminum compound added at intermediate stage of crystallization is in the range of 0.5 to 25 wt% expressed as Al_2O_3 on the basis of total silica (SiO_2) present in the precursor gel mixture.
- 10 19. A process as claimed in claim 12 wherein in step (e), a mineral acid is optionally added along with the source of aluminum to increase the yield of molecular sieve zeolite.
20. A process as claimed in claim 19, wherein the mineral acid used is selected from sulfuric acid and hydrochloric acid.